

REMARKS

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, tentatively rejected all pending claims 8-14 and 28-35. The Office Action indicated that claims 1-7 and 15-27 are withdrawn from consideration. In fact these claims were previously canceled.

Double-Patenting Rejection

The Office Action rejected claims 8-14 and 28-35 of the present application unpatentable over claims 1-18 of co-pending application 10/850,940. Applicant respectfully disagrees. First, the U.S. PTO routinely issues restriction requirements for method and apparatus claims, alleging them to be patently distinct. If necessary for the Examiner's reference, the undersigned will be happy to provide copies of numerous such restriction requirements (in issued cases), which necessitated the filing of divisional application. The co-pending application was filed as a separate application for this very reason (to avoid the need to respond to such a restriction requirement).

If the Examiner maintains this double patenting rejection, Applicant will add claims 1-18 of co-pending application 10/850,940 into this application (and abandon the co-pending application). Even if the next Office Action is made FINAL, the addition of those claims to this application should not raise any "new issues," based on the Examiner's admission that those claims are not patentably distinct from the claims of this application (and ostensibly because the Examiner has apparently already considered those claims).

Discussion of Rejections Under 35 U.S.C. § 102

The Office Action rejected claims 31-35 under 35 U.S.C. § 102(b) as allegedly unpatentable over U.S. Patent 6,438,676 (hereinafter the '676 patent). Applicant respectfully requests reconsideration and withdrawal of this rejection, based (in part) on the amendment made to claim 31.

Claim 31, as amended, recites:

31. A component for a computer graphics system comprising logic for compressing a plurality of groups of bits by shifting compressed groups of bits into bit positions that are to be removed during the compression, the logic being responsive to a mask, wherein contents of the mask define variable amounts that the plurality of bits are shifted during the compression, *the logic further comprising a plurality of multiplexers that are individually selectable by select signal lines, such that the groups of bits are shifted by controllably selecting individual ones of the select signal lines.*

(Emphasis added.) Claim 31 patently defines over the '676 patent for at least the reason that the '676 patent fails to disclose the features emphasized above.

As amended claim 31 defines the logic to comprise “a plurality of multiplexers that are individually selectable by select signal lines, such that the groups of bits are shifted by controllably selecting individual ones of the select signal lines”. Simply stated, no such comparable feature is disclosed or suggested in the '676 patent, and for at least this reason the rejection of independent claim 31 should be withdrawn.

As claims 32-35 depend from claim 31, these claims patently define over the '676 for at least the same reasons.

The Office Action failed to set forth Rejection for Claims 32 and 33

The Office Action rejected (generally) claims 32 and 33 in the same paragraph as claim 31.

Claims 32 and 33 recite:

32. The component of claim 31, wherein the mask is a pixel mask and the groups of bits to be compressed correspond to attributes associated with pixels to be displayed.

33. The component of claim 31, wherein each position of the mask defines a shift amount for a group of bits.

However, the features specified in claims 32 and 33 are not alleged (with specificity) by the Office Action to be disclosed in the '676 patent. That is, the Office Action fails to point to any location in the '676 patent where the "mask is a pixel mask and the groups of bits to be compressed correspond to attributes associated with pixels to be displayed." This reflects a deficiency in the rejection set forth in the Office Action. In fact, the undersigned performed an electronic search of the text of the '676 patent (as maintained by the U.S. PTO Web site), which electronic text search confirmed that the term "pixel" was not contained anywhere in the '676 patent. Clearly, therefore, the application of the '676 patent to claim 32 (as well as claim 33) is misplaced.

If the Examiner intends to maintain the rejection of these claims, the Applicant is entitled to a new (complete) rejection, which states, with specificity, where the claimed features are allegedly disclosed in the prior art. *Any such rejection would constitute "new grounds" that would need to be set forth in another "non-FINAL" Office Action.*

Claim 34 recites:

34. The component of claim 33, *wherein* the content of each position of the mask is defined by a single bit, and *the shift amount for a group of bits is defined by a summation of preceding mask positions whose contents indicate corresponding pixels are not to be affected by a subsequent computation, wherein the positions of the mask are arranged in an order and the preceding mask positions are those that, as ordered, numerically precede a given position.*

(Emphasis added.) Claim 35 patentably defines over the '676 patent for at least the reason that the '676 patent fails to disclose the features emphasized above.

The Office Action alleged that this feature was disclosed in col. 4, lines 1-19 of the '676 patent. The relevant portion of this cited location of the '676 patent states:

The bits from successive shifted parts 47a-d have been concatenated, so that bits from more than one field of the uncompressed data format 40 occur in the same field of the compressed data format 42. By "concatenation" of two shifted parts 47a-d is meant that the bits of one shifted part 47a-d follow the bits of another shifted part 47a-d each time at a distance of a predetermined number of bits (preferably directly, at a distance of zero bits), *so that the position of a shifted part 47a-d in the register depends on the sum of the variable lengths of the fields that precede it.*

(*Emphasis added.*) As emphasized above, the '676 patent discloses a "concatenation" of fields, such that the position of any shifted part in a register depends on the "sum of the variable lengths of the fields that precede it." In contrast, claim 34 expressly claims that the "shift amount for a group of bits is defined by a summation of preceding mask positions whose contents indicate corresponding pixels are not to be affected ..." There is no such contemplation or teaching in the '676 patent of such a summation of mask contents. For at least this reason, the '676 patent cannot properly anticipate claim 34. As claim 35 depends from claim 34, claim 35 patently defines over the '676 patent for at least the same reasons.

Discussion of Rejections Under 35 U.S.C. § 103(a)

The Office Action rejected claims 8-10 and 28-30 under 35 U.S.C. § 103(a) as allegedly unpatentable over the combination of the '676 patent in view of U.S. patent 6,006,244. Applicant respectfully disagrees. Applicant has made a cosmetic amendment to claim 8, which should help to more fully appreciate the embodiment of claim 8.

Turning first to independent claim 8, claim 8 (as amended) recites:

8. An apparatus for compressing a plurality of bits comprising:

a plurality of multiplexers arranged in a plurality of rows, wherein multiplexers in a first row have inputs connected to signals defining bits to be compressed and multiplexers of successive rows have inputs connected to outputs of the multiplexers of the preceding row, wherein each successive row of multiplexers comprises fewer multiplexers than the previous row; and ***control logic for controlling data select input signals for individual select inputs of the plurality of multiplexers such that individual bits of the plurality of bits are shifted varying amounts, the shift amount and the individual select inputs being determined by a mask.***

(Emphasis added.)

Applicant has amended claim 8 to clarify that the mask is used by the control logic to determine and control “individual select inputs of the plurality of multiplexers.” That is, the select input of EACH multiplexer is individually selectable. This control/selection process is described in the present application in connection with, for example, FIG. 9.

In contrast, no such comparable teaching is disclosed in either of the cited references. The ‘244 patent discloses a barrel shifter, which has a plurality of rows of multiplexers, generally structured like the rows of multiplexers of FIG. 9 of the present application. However, each select input is the same for a given row of multiplexers in the ‘244 patent. For example, reference number 90 illustrates a multiplexer select input, and this select input signal controls the select line for ALL multiplexers of that row. Similarly, select input 94, 96, and 98 likewise control the multiplexer select input for the multiplexers of those respective rows. Consequently, the structure disclosed in the ‘244 patent does not disclose the claimed feature of “control logic ... controlling data select input signals ***for individual select inputs of the plurality of multiplexers*** such that individual bits of the plurality of bits are shifted varying amounts, the shift amount ***and the individual select inputs being determined by a mask.***

For at least this reason, the combination of the ‘244 patent with the ‘676 patent fails to disclose the expressly-recited features of independent claim 8, and the rejection of claim 8 should be

withdrawn. As claims 9-14 depend from claim 8, the rejections of these claims should be withdrawn for at least the same reasons.

Turning now to independent claim 28, claim 28 recites:

28. An apparatus for compressing a plurality of bits comprising:
a plurality of multiplexers arranged in a plurality of rows, wherein multiplexers in a first row have inputs connected to plurality of signals, *some of which are to be removed through compression*, and multiplexers of successive rows have inputs connected to outputs of the multiplexers of the preceding row;
control logic for controlling data select input signals for the plurality of multiplexers, the control logic being responsive to a mask that defines positions of the plurality of signals as the inputs of the first row of multiplexers that are to be removed through compression, such that input signals following input signals that are to be removed are shifted into the position of the preceding signals that are to be removed.

(Emphasis added.) Applicant submits that claim 28 patently defines over the cited references for at least the reason that the cited references fail to disclose those features emphasized above.

There are several defining features of this claim. One such feature relates to the removal of signals through compression. Among other defining features, claim 28 defines “control logic ... controlling data select input signals for the plurality of multiplexers ... such that input signals following input signals that are to be removed are shifted into the position of the preceding signals that are to be removed.” The system disclosed in the ‘244 patent is incapable of performing such an operation. Indeed, the ‘244 patent merely discloses a shifter (or rotator), such that all input bits are shifted in sequence. NONE of the individual input signals are removed through compression. In fact, the structure disclose in the ‘244 patent (with select lines of each entire row of multiplexers being common) is not capable of performing such an operation.

Therefore, even IF the shifter of the ‘244 patent were combined with the system of the ‘676 patent, the embodiment expressly recited in claim 28 could not be realized.

For at least this reason, the combination of the '244 patent with the '676 patent fails to disclose the expressly-recited features of independent claim 28, and the rejection of claim 28 should be withdrawn. As claims 29-30 depend from claim 28, the rejections of these claims should be withdrawn for at least the same reasons.

The Office Action also rejected dependent claims 11, 13, and 14 under 35 U.S.C. § 103(a) as allegedly unpatentable based on the selective combination of features from the '676 patent, the '244 patent, and U.S. patent 5,430,464 (the '464 patent). The Office Action also rejected claims 11 and 12 under 35 U.S.C. § 103(a) as allegedly unpatentable based on the selective combination of features from the '676 patent, the '244 patent, and U.S. patent 6,636,226 (the '226 patent). As claim 8 defines over the cited art (as noted above), dependent claims 11, 13, and 14 define over the cited art for at least the same reasons.

As a separate and independent basis for the patentability of claims 8-14 and 28-30, Applicants respectfully traverse the rejections as failing to identify a proper basis for combining the selective features of the '676, '244, and '464 patents.. In combining the '676 and '244 patents, the Office Action stated only that the combination would have been obvious "in order to eliminate the multiple stage pre-shifter and reduce signal propagation delay." (Office Action, page 6). Likewise, when further combining the '464 patent, the Office Action alleged that the combination would have been obvious "in order to provide an improved compressed image frame buffer which exhibits a high efficiency in the decompression of the compressed image code." (Office Action, p. 7). When combining the '226 patent with the '676 and '244 patents, the Office Action alleged that the combination would have been obvious "in order to reduce the

memory bandwidth requirements in a 3D video graphics system.” (Office Action, p. 7). These alleged motivations are clearly improper in view of well-established Federal Circuit precedent.

It is well-settled law that in order to properly support an obviousness rejection under 35 U.S.C. § 103, there must have been some teaching in the prior art to suggest to one skilled in the art that the claimed invention would have been obvious. W. L. Gore & Associates, Inc. v. Garlock Thomas, Inc., 721 F.2d 1540, 1551 (Fed. Cir. 1983). More significantly,

“The consistent criteria for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that this [invention] should be carried out and would have a reasonable likelihood of success, viewed in light of the prior art. ...” Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant's disclosure... In determining whether such a suggestion can fairly be gleaned from the prior art, the full field of the invention must be considered; for the person of ordinary skill in the art is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention.”

(*Emphasis added.*) In re Dow Chemical Company, 837 F.2d 469, 473 (Fed. Cir. 1988).

In this regard, Applicants note that there must not only be a suggestion to combine the functional or operational aspects of the combined references, but that the Federal Circuit also requires the prior art to suggest both the combination of elements and the structure resulting from the combination. Stiftung v. Renishaw PLC, 945 Fed.2d 1173 (Fed. Cir. 1991). Therefore, in order to sustain an obviousness rejection based upon a combination of any two or more prior art references, the prior art must properly suggest the desirability of combining the particular elements to derive a keypad structure, as claimed by the Applicant.

When an obviousness determination is based on multiple prior art references, there must be a showing of some “teaching, suggestion, or reason” to combine the references. Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ2d 1378, 1383 (Fed. Cir. 1997) (also

noting that the “absence of such a suggestion to combine is dispositive in an obviousness determination”).

Evidence of a suggestion, teaching, or motivation to combine prior art references may flow, inter alia, from the references themselves, the knowledge of one of ordinary skill in the art, or from the nature of the problem to be solved. See In re Dembiczak, 175 F.3d 994, 1000, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). Although a reference need not expressly teach that the disclosure contained therein should be combined with another, the showing of combinability, in whatever form, must nevertheless be “clear and particular.” Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617.

If there was no motivation or suggestion to combine selective teachings from multiple prior art references, one of ordinary skill in the art would not have viewed the present invention as obvious. See In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); Gambro Lundia AB, 110 F.3d at 1579, 42 USPQ2d at 1383 (“The absence of such a suggestion to combine is dispositive in an obviousness determination.”).

Significantly, where there is no apparent disadvantage present in a particular prior art reference, then generally there can be no motivation to combine the teaching of another reference with the particular prior art reference. Winner Int'l Royalty Corp. v. Wang, No 98-1553 (Fed. Cir. January 27, 2000).

For at least the additional reason that the Office Action failed to identify proper motivations or suggestions for combining the various references to properly support the rejections under 35 U.S.C. § 103, those rejections should be withdrawn.

New Claims

New claims 36-37 define additional features, which clearly define over the cited art. Claims 36-37 depends from claim 8. In addition to patently defining over the prior art at least by virtue of their dependency, further claims 36-37 define the arrangement and interconnection of the multiplexers in a way that clearly define over the cited art of record.

All claims 8-14 and 28-37 are believed to be in condition for allowance, and the Examiner is respectfully requested to pass those claims to issuance. If the Examiner believes a teleconference will expedite the examination of this application, the Examiner is invited to contact the undersigned attorney at 770-933-9500.

No fee is believed to be due in connection with this Amendment and Response to Office Action. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to deposit account 20-0778.

Respectfully submitted ,

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